THE JOURNAL OF SCHOOL HEALTH

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REPORT OF COMMITTEE ON TUBERCULOSIS OF A. S. H. A.
and
PAPERS READ BEFORE THE 54th ANNUAL
MEETING OF THE N. T. A.

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AMERICAN SCHOOL HEALTH ASSOCIATION

Organized 1927

Devoted to the interests and advancement of those engaged in school health activities and the service rendered by them

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Vol. XXIX APRIL, 1959 No. 4

CONTENTS

	Page
Report of Committee on Tuberculosis — American School Health Association	127
A Second Look at Tuberculosis — Herman Kleinman, M.D.	137
Tool of the Trade — R. Merrill Alling	148
Our 28 Years with the Mantoux Test, Kent County Tuberculosis Society, Grand Rapids, Mich. — Blanche H. DeKoning, R.N.	154
Knowledge About Tuberculosis Held by High School and College Students — H. Frederick Kilander, Ph.D.	160
The Tulare County School Health Advisory Board Story — Burt M. Kebric, Ed. D.	164
The Tuberculosis Story — 1958	167
1959 Meeting — ASHA Committee on Tuberculosis	136
Meetings	147, 153
News and Notes	147, 153, 168
Request for Nominations	159
Advertisements	163, 168
Reviews	166, 167

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THE JOURNAL OF SCHOOL HEALTH

Devoted to the interests and advancement of school health service and instruction.
Your participation by membership is solicited.

Vol. XXIX APRIL, 1959 No. 4

REPORT OF COMMITTEE ON TUBERCULOSIS AMERICAN SCHOOL HEALTH ASSOCIATION

Presented before the Council, October 26, 1958
St. Louis, Missouri

The JOURNAL OF SCHOOL HEALTH published a special issue in April 1958, which contained the 1957 Report of the Committee on Tuberculosis and three of the papers which were presented at the time of the meeting of the National Tuberculosis Association in Kansas City on May 5, 1957.

Your Committee arranged a program which was presented on Sunday evening, May 12, 1958, in Philadelphia during the annual meeting of the National Tuberculosis Association. Dr. Ruth Weaver, President of the American School Health Association, kindly attended this meeting and introduced the program. Arrangements for this meeting were graciously made by Mr. Walter B. Furbush, Administrative Assistant to the Managing Director, National Tuberculosis Association.

A number of requests were made that as many of these papers as possible be published in a special issue of the JOURNAL OF SCHOOL HEALTH for wide distribution as was done in 1956 and 1957. Doctor DeWeese and Doctor Hinrichs have arranged for publication of three of these papers.

A similar program is being prepared for presentation during the meeting of the National Tuberculosis Association in Chicago in the spring of 1959.

Certification of schools continued as the main project of the Committee. Qualifications for certification remained unchanged, with the certificate indicating that the award was granted by the American School Health Association and the State Tuberculosis and Health Association.

The *Arizona* subcommittee of the Committee on Tuberculosis of the American School Health Association consists of:

Richard O. Flynn, M.D., Chairman	Tempe
O. J. Farness, M.D.	Tucson
Harold E. Kosanke, M.D.	Tucson
Lloyd K. Swasey, M.D.	Phoenix
B. L. Snyder, M.D.	Phoenix

Mrs. Helen E. Watkins is Executive Director of the Arizona Tuberculosis and Health Association.

In *Chicago* and *Suburban Cook County* the subcommittee consists of:

Julius B. Novak, M.D., Chairman, Medical Director, The Tuberculosis Institute of Chicago and Cook County
John B. Hall, M.D., Director, Cook County Department of Public Health, 737 South Wolcott, Chicago, Illinois
E. A. Piszczek, M.D., Executive Director, The Suburban Cook County Tuberculosis Sanitarium District, 55th and County Line Road, Hinsdale, Illinois
Maya Unna, M.D., 4 S. Stone, LaGrange, Illinois
Irwin A. Smith, M. D. 1141 Church, Northbrook, Illinois

This committee met on September 10, 1958, and there was complete agreement that certification of schools is desirable. Provisions were made with reference to qualifications for Class A and Class B certificates. The committee decided that certification will be awarded on an annual basis and will only be given when complete follow-up of cases is done. A large volume of tuberculin testing was done in the Chicago and Suburban Cook County area during the school year 1957 and 1958.

In *Illinois* the subcommittee consists of:

J. A. Stocker, M.D., Chairman, St. John's Sanatorium,	Springfield
George C. Turner, M.D.	Oak Forest
Marie A. Hinrichs, M.D.	Riverside

Mr. Ben D. Kiningham is Executive Director of the Illinois Tuberculosis Association. Mr. E. J. Gross, Assistant Executive Director, who is in charge of the certification program said that 177 high schools have been certified and it is planned to include grade schools as soon as possible. "If we can just implement community-wide tuberculin testing and establish a full index of positive reactors, our goal of eradication will be reached much sooner."

In *Iowa* the subcommittee consists of:

Charles W. Gray, M.D., Chairman	Ottumwa
R. E. Smiley, M. D.	Mason City
R. B. Widmer, M.D.	Winfield

Mr. Paul Williamson is Executive Director of the Iowa Tuberculosis and Health Association.

Since 1954, the Iowa Tuberculosis and Health Association has had a tuberculin reactor registry for all age groups on a county-wide basis.

In 1957-58, tuberculin testing was done in 352 schools including 43,466 students, of whom 2.7 reacted. The percentage of reactors among both students and personnel was lower in 1958 than in any preceding year. Certificates were issued to 260 schools. This brought the total number of certificates issued in Iowa to 914 since the project was initiated in 1955.

In *Minnesota* the subcommittee consists of:

L. S. Jordan, M.D., Chairman	Granite Falls
S. A. Slater, M.D.	Worthington
R. B. J. Schoch, M.D.	St. Paul
Mario Fischer, M.D.	Duluth
F. W. Gunlaugson, M.D.	Minneapolis

Mr. J. G. Neal is Managing Director of the Minnesota Tuberculosis and Health Association. Mrs. Olive Billyeald, Program Director, is in charge of the certification project.

A total of 3,177 certificates has been awarded to schools throughout the state. During the past year 275 certificates were earned by schools in 24 counties.

While the Minnesota Tuberculosis and Health Association has consistently promoted the Certification of Schools, there have been two main difficulties in making this a statewide project. First, in many counties, schools have been unable to qualify because they have set up their Mantoux testing program on a selected grade basis rather than on a total school population.

Particularly in larger schools, there has been difficulty in securing participation of all the personnel. When one bus driver, one cook, or one teacher refused the Mantoux test, it was impossible for a school to earn an award.

Several factors now point to a growing interest among Minnesota's school administrators and health officials in the School Certification program. An increasing number of school boards throughout the state are requiring that their personnel have annual mantoux tests, or, if they are tuberculin reactors, have annual x-ray films of the chest.

The program Committee of the Minnesota Tuberculosis and Health Association has definitely gone on record to promote Certification of Schools as the major part of the statewide tuberculosis case-finding program.

"The Minnesota Tuberculosis and Health Association hopes in the near future to be able to announce as one definite program goal: 'An American School Health Certificate on the wall in every school in Minnesota'."

The *St. Louis* subcommittee consists of:

Wilbur A. Mullarky, M.D., Chairman 8711 St. Charles Road,	St. Louis
Walter C. Gray, M.D.	St. Louis
Norman Mistachin, M.D.	St. Louis

Miss Ellen Boyce is Executive Director of the St. Louis Tuberculosis and Health Association.

In St. Louis the Academy of General Practice announced that 200,000 tuberculin tests had been administered to school children. Approximately five per cent reacted.

In *Montana* the subcommittee is composed of:

John A. Schaeffer, M.D., Chairman	Billings
John A. Newman, M.D.	Butte
L. H. Blattspieler, M.D.	Helena
Paul F. Christenson, M.D.	Great Falls
John Murphy, M.D.	Ekalaka

Mr. John H. Casebolt is Executive Director of the Montana Tuberculosis Association.

Mr. R. Merrill Alling, Field Consultant, Montana Tuberculosis Association, reported that since the certification of schools program was inaugurated in 1956, it had been offered to 183 schools, of which 106 received Class A, and 30, Class B certificates. To date, 11 per cent of Montana's school population has been tested. The cost per test, excluding volunteers' time and x-ray films ,has averaged 11 cents. During the present year, more than 14,000 tests were administered which was 93 per cent of the total students and adult school personnel offered the test. Only 3.6 per cent reacted. Mr. Alling said, "It is interesting to note Montana's newly reported cases of tuberculosis in light of this program. During 1956, 282, and 1957, 301 new cases were reported. Through the 35th week of 1958, the newly reported cases were 16.3 per cent ahead of the same time last year. This increase graphically portrays the need for continued and increased efforts in Montana's School Certification program."

The program of the annual meeting of the Montana Tuberculosis Association included a symposium on "Present Status of Animal Tuberculosis." Dr. J. W. Safford, Montana State Veterinarian, participated after which the Montana Tuberculosis Association solicited his paper entitled "The Eradication of Bovine Tuberculosis in Montana" which was published in the *Montana Stockgrower*, July 1958. This paper should be read by every member of the American School Health Association as it is packed with information on the values of the tuberculin test both in animals and in people.

In *New Mexico*, Mr. Robert J. Utzinger, Executive Director of the New Mexico Tuberculosis Association, stated that his board voted to request that a subcommittee be appointed to enable the state to participate in the tuberculosis certification of schools program. The following physicians have been appointed:

Joseph Gordon, M.D., Director of the Albuquerque Chest Clinic 106 Girard, S.E., Albuquerque, New Mexico

Crawford Jernigan, M.D., Director of the Fort Stanton Tuberculosis Hospital, Fort Stanton, New Mexico

Ashley Pond, M.D., Vice President of the New Mexico Tuberculosis Association, P. O. Box 768 Taos, New Mexico

Louis Levin, M.D., President, New Mexico Tuberculosis Association, 231 North Main, Belen, New Mexico

It is expected that certification of schools will soon begin in New Mexico.

In *North Dakota*, the subcommittee consists of:

Percy L. Owens, M.D., Chairman, Bismarck Department of Health, Bismarck

Mr. Edward L. Sypnieski is Executive Director, North Dakota Tuberculosis and Health Association. During the 1957-58 school year, 11,433 students were tested with 1.3 per cent reactors. There were 852 personnel members tested of whom 18.6 per cent reacted. Certificates were awarded 331 schools. Since the certification of schools program was initiated in 1954, 92,786 students were tested with 1.8 per cent reactors and 6,450 personnel members with 18.9 per cent reactors. A total of 1,889 schools have been awarded certificates.

Certification of schools is leading to more extensive programs. For example, in one county a community requested a community-wide tuberculin testing survey. If this program is successful, it is expected that other communities will follow.

In Fargo, the largest city, there was interest in testing all students in public and private schools, a total of approximately 10,400. Thus, North Dakota is well on the road to eradicating tubercle bacilli from people as it has so nearly done among its animal herds.

In *South Dakota* the subcommittee consists of:

Roscoe E. Dean, M.D., Chairman	Wessington Springs
C. L. Behrens, M.D.	Rapid City
H. Russell Brown, M.D.	Watertown
N. E. Wessman, M.D.	Sioux Falls

Dr. R. G. Mayer, who was chairman of the South Dakota subcommittee died from primary carcinoma of the lung January 8. He had been a member of the South Dakota subcommittee since December 1944 and was chairman from January 1954 until his death. He worked so enthusiastically and untiringly in Aberdeen, Brown County, with the Health Department and the county and state Tuberculosis Associations that nearly all the schools qualified

for certification. His work was so well done and he was so highly respected that the Brown County Tuberculosis Association established two plaques in his memory. The plaques are to be awarded by the Association annually to Brown County schools with the highest percentage of participants in a tuberculin testing program. One plaque will be awarded each year to the rural school and the other to an independent school with the best record in tuberculin testing.

The South Dakota Tuberculosis and Health Association unanimously voted that the Agnes M. Holdridge Medal be given posthumously to Doctor Mayer in recognition of his outstanding contributions to the advancement of public health and the control of tuberculosis in South Dakota. This award was made in October 1958.

Mr. Marvin T. Whealy, Executive Director, South Dakota Tuberculosis and Health Association, published the report in the September 1958 issue of the *Health-O-Gram* which stated that 7,045 pupils (93 per cent of all children enrolled in 82 Brown County schools) received Mantoux tests during the period from January 1957 to May 1958.

The test was also administered to 316 teachers (97 per cent of the teaching force) and 145 other school personnel members.

With Doctor Mayer's death, Dr. Roscoe E. Dean, Wessington Springs, who had been a member of the subcommittee since 1954 was made chairman. Doctor Dean had previously manifested great interest in certification of schools before entering military service. He has only recently returned and we may expect considerable activity in the certification of schools in South Dakota.

During the year, a number of letters were received from individuals in states in which the school certification project has not yet been introduced. These persons have expressed a desire to start certification of schools in local areas, such as counties. All have been referred to their State Tuberculosis Associations since to date, our Committee has worked only with state and large city tuberculosis organizations. Such requests for information and expressions of desire to proceed even on a local basis seem to indicate a rather rapidly growing interest in school certification.

From various areas, persons wrote concerning certification of schools. A physician about to launch a program said the main problem had been to get a high percentage of the students to participate. "We feel that the school certification program will be very

helpful in obtaining the maximum participation in the tuberculin testing program."

From one state came the following: "We still have all sorts of programs in our counties. The range goes from testing grades one to 12 to many combinations of grades. One day I hope that we can report that this state has tested all grades in all schools."

From another worker came the statement that the main difficulty in carrying out certification on a state-wide basis was that some schools have been unable to qualify because in their counties, there has been set up a testing program on a selected grade basis rather than on total school population. Another problem particularly in larger schools, has been difficulty in securing participation of all the personnel.

Concerning these difficulties it should be more generally known that your committee has always stood firmly for testing of children in all grades. It has never supported selective grades because too many catastrophies have been reported among those not tested in a given period. The committee has also been insistent upon 100 per cent participation of personnel. This requirement is because there are so many examples on record of personnel members refusing the tuberculin test and x-ray film inspection of the chest as they know or strongly suspect that clinical tuberculosis is present.

In some places where facilities are not available for testing all school children in a single year, it is limited to what can be done, but is complete in the schools tested. For example, in some counties, one-half of the schools are tested one year and the other half the next. In one sizeable city, plans are underway for starting certification beginning with one-tenth of the schools. It is hoped that the percentage of schools tested can be markedly increased annually as the program develops.

The ultimate goal is to reach all the schools in America with a complete program as soon as possible. Until this is done, the occassional personnel member or high school student will develop contagious tuberculosis and spread tubercle bacilli among their associates, not only in the schools but also in their homes and communities.

From one or two places came reports that public health nurses have objected to the certification program because it reiquires so much work and so few or no clinical cases and even few reactors are found.

In all probability, such nurses have not been informed that the tuberculosis situation has so changed that it is no longer a matter of seeking just the ill and dying cases or even those who appear well, but have large x-ray shadows.

While some of this work remains to be done, activities are now being concentrated on the tubercle bacilli rather than just the damage it has caused. The tuberculin test is the only satisfactory method of finding all persons harboring tubercle bacilli. This cannot be done by x-ray film inspection of the chest except for those who have gross disease. It is only persons harboring tubercle bacilli who provide the clinical and contagious cases. Every person with contagious tuberculosis passed through the time when no phase of an examination would have revealed evidence of this disease except the tuberculin reaction. Since every person at any age who reacts to tuberculin is a potential case of clinical and contagious disease, all such individuals must be identified and have periodic examinations in order that those destined to develop clinical tuberculosis will have it found before it becomes contagious.

Although it does require a large volume of work and effort on the part of nurses, physicians, volunteer workers and others to locate all the tubercle bacilli among children and personnel in schools and elsewhere, it is the only method by which tuberculosis eradication can be achieved. Finding so few reactors with so much work should not be a complaint since it is the only true criterion that the eradicaton program is succeeding. The goal will be reached only when all of the testing in a school or a community results in finding no reactor. This has already been achieved in a considerable number of rural schools in this country, but the testing must go on for a while because of the possibility of older persons harboring tubercle bacilli becoming contagious.

The program of the veterinary profession is a convincing example. Among the 95,000,000 cattle in the United States, periodic tuberculin testing continues despite the fact that the percentage of reactors has been reduced to 0.17 and in many areas there is no reactor. However, veterinarians are aware of the danger that still exists of tubercle bacilli being introduced among the tuberculosis free animals by owners, farmhands, etc. They know that as long as a single animal reacts to the test there is a tuberculosis problem. This is also true of people.

Your committee has been criticized occasionally because it accepted methods other than the intracutaneous of administering

tuberculin, particularly the patch test. The committee has felt from the outset that the intracutaneous administration is superior, but circumstances sometimes prevailed which made intradermal administration impossible or resulted in a small response. Therefore the patch test has been accepted because it seemed so much better to have it used in a higher percentage of a given group than no test or even one to which few would respond. Moreover, the patch test is better than it has often been portrayed. It has been used exclusively by the St. Louis Academy of General Practice with the result of finding contagious cases responsible for reactions in school children in larger number than have ever been found in mass x-ray surveys.

Moreover, the patch test has been accepted by your committee because it was felt that wherever it was found inferior the workers would voluntarily change to the intradermal test. In fact, this occurred in one state this year. Our procedure has seemed much better than a dictatorial one which in the end would accomplish much less.

Another criticism has been that certificates have been awarded before the follw-up work of the reactors was done. Certification of schools was intended from the beginning only as a technique for stimulating interest and greater activity in the general eradication program. In communities where it has been in vogue so much information about tuberculosis has been disseminated that it was believed communities would carry through the follow-up work under the direction of their Tuberculosis and Health Association, other organizations and practicing physicians soon after certificates were granted. Awarding of the certificate indicated that one goal had been reached, but the educational work makes it evident that more work needed to be done. Critics will be interested to know that in Chicago and suburban Cook County certificates are being awarded only after the follow-up work has been completed.

Another criticism has been to the effect that only children and school personnel are involved in a certification program. However, in most places the program has extended far beyond the schools and in some places has included every person in the communities. For example, when a child is found to react to tuberculin, a search is promptly made for the source of the infection among parents, grandparents, other relatives, and indeed all adults

with whom such a child has been in association. From the beginning, the committee was hopeful that certification of schools would stimulate so much interest that the citizenry would demand or arrange for community-wide and even county-wide tuberculin testing programs. These have actually been arranged in a few places as a result of school certification.

Members of the Committee are:

Lloyd B. Dickey, M.D., California

Herman E. Hilleboe, M.D., New York

Sydney Jacobs, M. D., Louisiana

H. D. Lees, M.D., Philadelphia

Esmond R. Long, M.D., Virginia

J. B. Novak, M.D., Illinois

Howard M. Payne, M.D., Washington, D. C.

W. P. Shepard, M.D., New York

David T. Smith, M.D., North Carolina

John B. Towey, M.D., Michigan

James J. Waring, M.D., Colorado

J. A. Myers, M.D., Minnesota, Chairman

Program

COMMITTEE ON TUBERCULOSIS— AMERICAN SCHOOL HEALTH ASSOCIATION

CHICAGO, SUNDAY, MAY 24, 1959

8:00 P.M. - 10:00 P.M. Palmer House

J. Arthur Myers, M.D., Minneapolis, Minnesota, *Chairman*

FRED V. HEIN, Chicago, Ill., *Introduction*

Out of Sight, Out of Mind—The Enigma of Tuberculosis

MAX L. DURFEE, Oberlin, Ohio

A Veterinarian Looks at the Tuberculosis Problem

PAUL S. DODD, Danville, Illinois

Certification of Schools

MRS. OLIVE BILLYEALD, New York, New York

Tuberculin Testing—The Necessary Step in Eradication

E. A. PISZCZEK, Forest Park, Illinois

A SECOND LOOK AT TUBERCULOSIS

HERMAN KLEINMAN, M.D.

Chief, Section of Chronic Diseases

Minnesota Department of Health

Minneapolis, Minnesota

This writer has not had a long experience with tuberculosis, but he has had an intense and a unique one. It was his privilege, while working on an Indian reservation in Minnesota, to watch two extremes of the tuberculosis problem simultaneously. He was able to see tuberculosis among the Indians in the present as it must have been among the non-Indians at the turn of the century. He was able to see all the sickness, death, misery, and family and social disruption that accompany this disease in one place while he could, by just stepping across a boundary line, see a population where all of this misfortune was almost nothing but a memory. The Indian reservation was an island of the past in the Minnesota present. But happily he was to learn that, in spite of difficulties and neglect, the Indian tuberculosis problem was yielding in morbidity and mortality to the ordinary methods of control. He learned that the Indians was not peculiarly susceptible to tuberculosis. They were just peculiarly exposed and pecularily neglected. He left the reservation convinced that standard tuberculosis control procedures, if they could be applied, would work anywhre in the world, regardless of culture or race.

FIGURE 1A

NEWLY REPORTED TUBERCULOSIS CASES
AND TUBERCULOSIS DEATHS UNITED STATES, 1930-1955

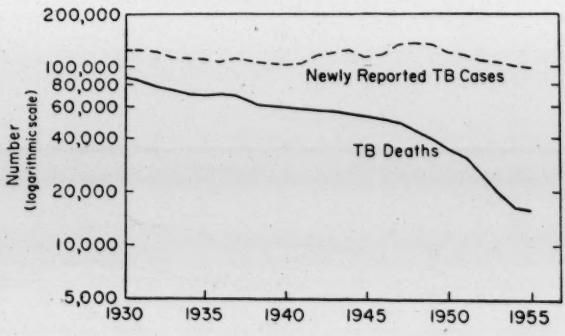
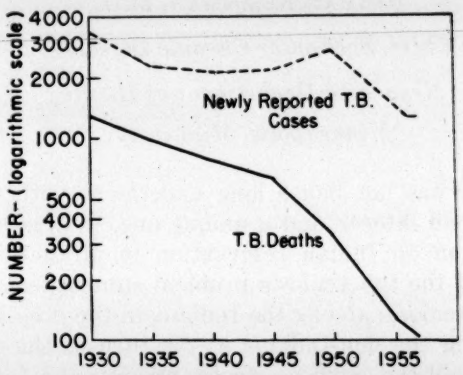


FIGURE 1B

MINNESOTA



The most striking thing about tuberculosis statistics in the country since the close of the first world war has been the steep and steady decline of the mortality rates. This is shown in Figure 1A and 1B for both the United States and Minnesota. In the country as a whole there were over 80,000 deaths due to tuberculosis in 1930 and by 1935 this had fallen to approximately 18,000. In Minnesota some 1,200 tuberculosis deaths were recorded in 1930 and in 1956 there were only 115. More disappointing is the failure of the rate of newly found cases to decline in a similar manner. Reference to Figure 1 again will show on the national level that there is virtually no difference in the number of new cases discovered year by year from 1930 to 1955. In Minnesota there has been some decline in the rate of newly discovered cases but the declivity is not nearly so steep as is the drop in the death rate.

FIGURE 2A

TUBERCULOSIS DEATH RATES BY AGE, UNITED STATES 1900-1954 (EXPANDING DEATH REGISTRATION STATES)

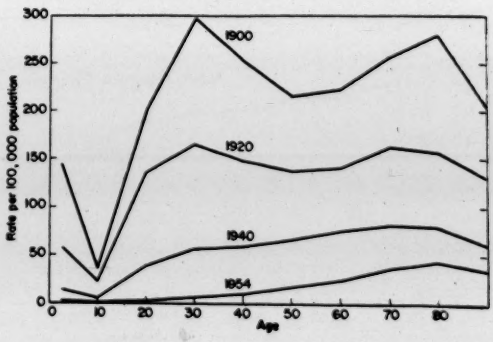
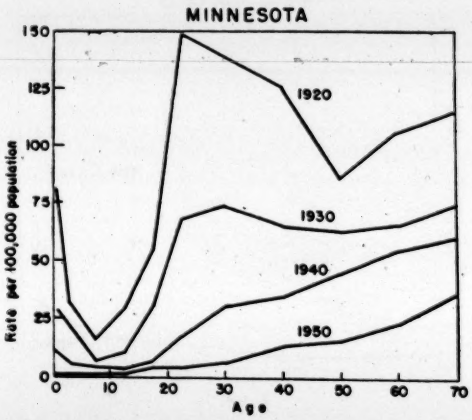


FIGURE 2B



Figures 2A and 2B show the death rates for different ages in the United States and Minnesota at four different periods since 1900. It is evident that age specific death rates have changed so that tuberculosis is no longer the killer of youth as it once was. Rather, the bulk of tuberculosis deaths occur in older age groups. In fact, in Minnesota in 1956 half of the tuberculosis deaths occurred in persons 65 years of age and two-thirds of the tuberculosis deaths occurred in individuals older than 45 years. This trend in mortality rates is shown for the single year 1954 in Figures 3A and 3B. In addition these figures show that newly discovered cases are also being found increasingly in the older age groups. However, a substantial number of new cases are still found in the young and in middle adult life.

FIGURE 3A

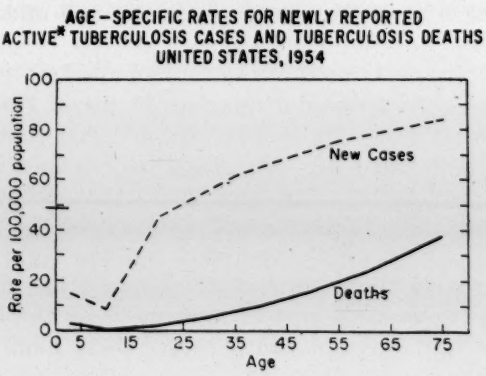
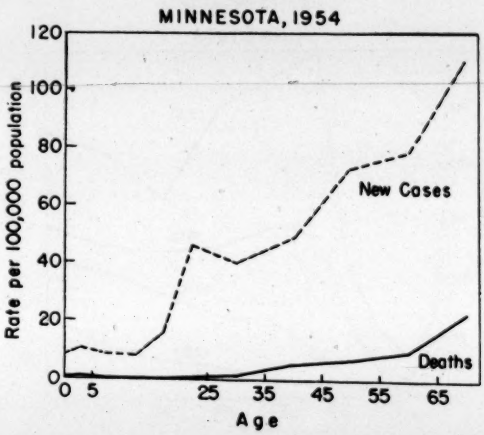


FIGURE 3B



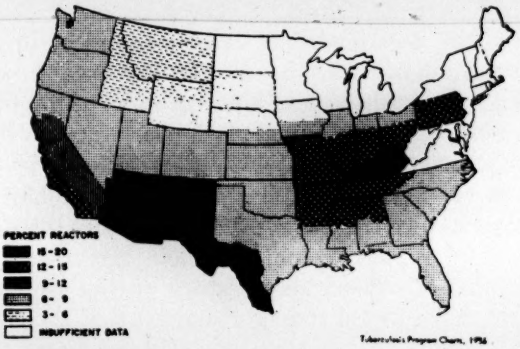
The relative intensity of the tuberculosis problem varies from area to area. The mortality rates, for example, range from 3.5 per 100,000 in some western and midwestern states to 43.8 per 100,000 in some south and southwestern states. In many areas, as in Minnesota, the smaller sanatoria have found it expedient to close their doors and transfer their few patients to larger institutions. The area differences in the tuberculosis picture are shown in the maps of Figure 4. These maps show, too, the general parallelism that exists between tuberculin sensitivity, tuberculosis mortality, and newly discovered tuberculosis disease.

Statistics thus show that there has been a marked decline in tuberculosis mortality and that the weight of this mortality is now borne by the older age groups. Statistics show too that the rate of newly found cases does not parallel the trend in death rate. The case load is still heavy and while it is shifting to the older age groups it is still of great concern in young and middle life. Mortality statistics, in other words, do not tell the whole story.

The newest agents used in the control and treatment of tuberculosis are the antimicrobial drugs and the use of resectional surgery. There is certainly impressive evidence that these agents prolong life, actually save life, and materially reduce the necessary period of hospitalization. But these agents have brought with their brilliant results new problems and new questions. The cautious observer with a lifetime of experience has the right to ask about the permanency of these "miracles." Experts in tuberculosis are just now coming to some sort of agreement on the best combinations and the best ways in which to use these newer drugs. The

FIGURE 4

PREVALENCE OF TUBERCULIN SENSITIVITY
IN WHITE MALE NAVY RECRUITS, 1949-1951

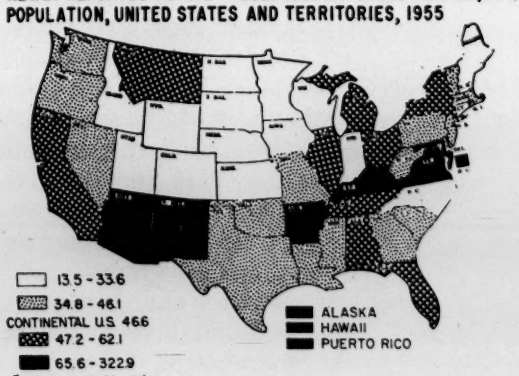


Tuberculosis Program Charts, 1956

TUBERCULOSIS DEATHS PER 100,000 POPULATION
UNITED STATES AND TERRITORIES, 1954

Tuberculosis Program Charts, 1956 XXI

NEWLY REPORTED ACTIVE* TUBERCULOSIS CASES PER 100,000
POPULATION, UNITED STATES AND TERRITORIES, 1955



Tuberculosis Program Charts, 1956 VI

laboratory has been particularly puzzled. It finds that the tubercle bacilli that it cultures from some patients do not affect test animals in the usual way although the source of these bacilli is an active case of tuberculosis. A negative bacteriological status in any one patient does not mean exactly the same thing as it did in the days before drugs were used. For, the growth of drug-exposed tubercle bacilli in culture and their growth in the human body are not precisely the same thing. It is therefore becoming difficult at times to decide when a patient really ceases to be a public health menace.

The truth is that the decline in tuberculosis mortality began long before the advent of surgery and the new drugs. These agents are extremely recent in their application considering the long period of tuberculosis history during which they were not available. This would strongly suggest that the established methods have been efficient and that they still can be considered valid. The mortality decline came about as a result of a number of activities. In particular it is fascinating to note how the precipitous decline in the mortality curve coincides with the appearance and acceptances of tuberculosis sanatoria for the isolation and treatment of the tuberculosis patient. The import of the eradication of the disease in cattle apparently became operative at the same time. Other factors that must be mentioned are a better knowledge of the nature of the disease, better and more complete reporting, the epidemiological approach to individual cases (looking for the source case and secondary cases), intensified case finding operations including the application of mass techniques, the pasteurization process, and finally the newer methods of therapy. The shift of mortality to older age groups is more difficult to explain; it is probably due to a combination of defects in reporting, in case finding and in response to treatment.

There have been then, great changes in the character of tuberculosis. But, in the midst of all these changes, there are still some aspects whose importance has remained unaltered and which may rightly be regarded as a set of "eternal verities."

1. The tubercle bacillus is still the cause of tuberculosis. The primary attack must be here and not diverted too much to secondary factors. That is not to say that socio-economic factors do not play a role in the etiology of tuberculosis. They do. But the most sordid way of life will be free of tuberculosis if the tubercle bacillus is not present in the environment. Conversely, the highest standard of living will not prevent tuberculosis if the tubercle bacillus enters the environment. There was no tuberculosis among

the Indians on this continent until the white man brought the bacillus to them.

2. The disease is still communicable from man to man and from animal to man. Sometimes it is transmitted from man to animal. This appears to be a trite and unnecessary statement but the first half of it justifies the isolation of the active tuberculosis case and the second half justifies the destruction of animals bearing the disease. The decline of tuberculosis among the Indians of Minnesota can be ascribed to only one thing — the finding and the isolation of open cases. No other method has been used.

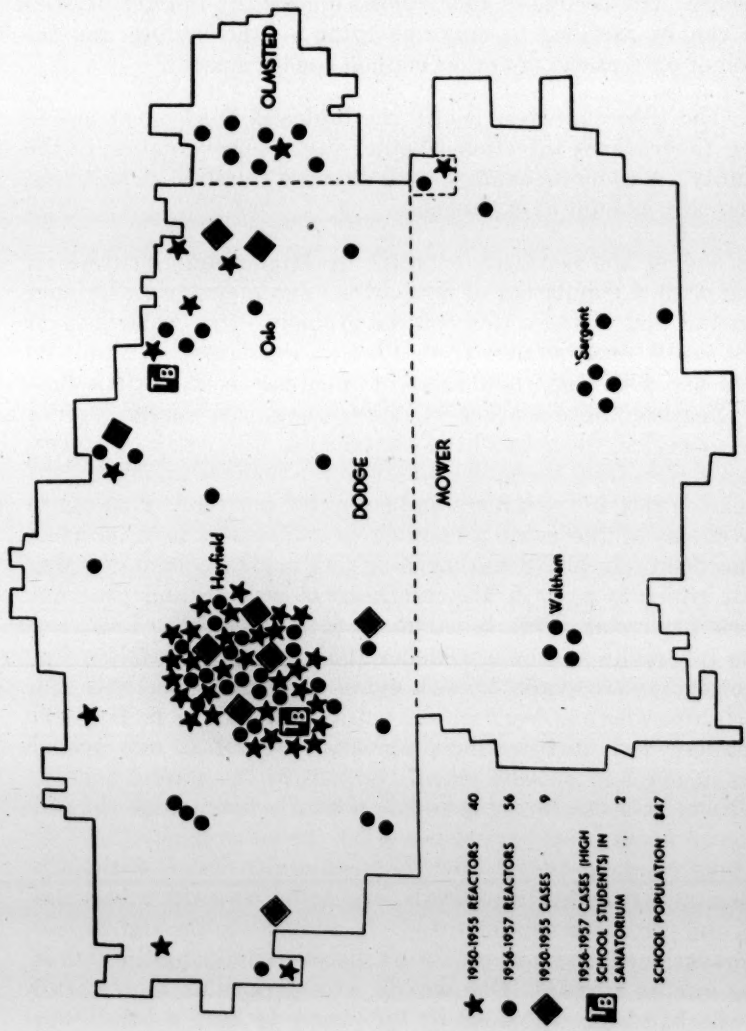
3. The tuberculin test is still the best and quickest means of locating tuberculosis infection whether in the individual or in the community. A concrete example will do more to establish this concept than any amount of exposition.

In one of the southern counties of Minnesota, the town of Hayfield with a population of 800, awoke one morning in October 1955 to find that it had a tuberculosis problem. The problem itself was not really new because from 1952 to 1954 this town and its environs had sent eight new cases of tuberculosis to various hospitals. Because the discovery of these cases was spread over a three-year period, there was little excitement. What woke the town up was a report from the public health nurse that the annual tuberculin reactor rate in the schools had risen to 8 per cent. This figure was in excess of the rates prevailing in adjacent school districts and was definitely above the more or less constant rate of three per cent which is seen in Minnesota areas year in and year out where no particular acute tuberculosis problem exists. Realizing that the tuberculin survey of October 1955 was an incomplete one, arrangements were made to test again to include not only the school chilren who had been missed but also the adults in Hayfield and vicinity. Two such testing programs revealed 22 new school reactors in one and 18 new school reactors in the second survey. In other words, some 40 young people within a year's time showed evidence of having had experience with the tubercle bacillus. It would take too long to tell how the community itself, with help from local and state health officials, organized both the tuberculin surveys and the necessary follow-up. In addition to the eight cases already mentioned, two new ones were discovered during the course of these intense surveys. One was in a very popular high school senior who had been forbidden by his family to have a tuberculin

test. The other was in a girl whose cousin had been treated for tuberculosis three years previously.

Things are quiet in Hayfield now; there have been no other new cases. Apparently the source of trouble there, lay somewhere in the 10 cases that were discovered since 1952 and probably specifically in the last two cases. At any rate, a year later the tuber-

FIGURE 5



The above map of the Hayfield area shows how the concentration of new positive reactors to the tuberculin test showed up in the vicinity of the newly discovered cases of tuberculosis. The careful follow-up made by Bernice Weigel, R.N., Dodge county nurse, after the TB survey in Hayfield, laid the foundation for this map.

culin reactor rate around Hayfield was again down to a little below three per cent.

A study of Figure 5 will enable one to appreciate at a glance the various facets of the Hayfield story. The tendency of tuberculin reactors and tuberculosis cases to cluster is strikingly evident.

This incident is a good example of how sensitive an indicator the tuberculin test is when applied to a community. The tuberculin test, aside from its value to the individual, can show whether the local tuberculosis situation is stable, whether it is worsening, and whether after a period of trouble, the situation has returned to "normal."

Another community in the central part of Minnesota has recently encountered a similar problem. A constellation of newly discovered cases in this area was accompanied by an increase in the school reactor rate from 3 to 6 per cent. It will be interesting to note whether the same type of community action here will bring about the same degree of achievement as was noted in Hayfield.

Not too many years ago the specificity of the turberculin test came into question because lung calcifications were being noted in the X-ray films of many who were negative to the test. It was soon discovered that these calcifications were due to a totally different disease, histoplasmosis, and the tuberculin test was again used with confidence. More recently the specificity of the tuberculin reaction is again being questioned; this time on the basis of the material used (Old Tuberculin) and the dosages employed. The proponents of these new ideas have much to support their contentions. But, the long history of success attached to the older and more familiar procedure, will make it hard to undermine and displace it as a mass screening procedure.

4. Tuberculosis still essentially occurs as a family epidemic and epidemiology must start with the family unit. Dollar for dollar and hour for hour, the family investigation will yield the most in tuberculosis control profit. A community-wide survey is really an extension of the family survey through the close relative survey, the school survey, and the industrial or other selected group survey.

5. Tuberculosis is still an insidious and chronic disease; its earliest stages are without symptoms. The early detection of active disease requires a high index of clinical suspicion. The best place for this suspicion to reside is in the mind of the family physician. It is he who sees the patient most frequently and knows him most intimately.

6. In spite of shortened periods of hospitalization the disease still represents an economic drain in money and time. The most minimal case even today is advised to stay under treatment for at least a year. It is extremely doubtful whether the family of average income could from its own resources carry the full financial burden of managing a case of tuberculosis including treatment, rehabilitation and maintenance of family solidarity during the course of treatment and rehabilitation. Not only have basic sanitorium costs increased but the necessary adjuncts to hospitalization such as drugs, surgery, occupational therapy, and rehabilitative procedures have added to the expense. It was once computed that the money expended to provide medical care for tuberculosis in a single Indian family of 11 persons representing three generations would have been sufficient to operate a complete medical program for 3,000 fellow Indians for more than half a year.

7. The disease is still socially disrupting in its effects on the family. The stricken person is often a key person in the family unit; the mother or the father who is the breadwinner. Sometimes it is someone who is on the brink of a promising career. A family unit can be irretrievably lost as such if several members are involved simultaneously. Most infrequently, the distress is such as to require the intervention of some welfare agency. The mental and emotional disturbance of both patient and family may be such as to require careful, considerate, and sympathetic support from some outside source.

8. Everybody is vulnerable regardless of age, sex, race, or social stratum. The only things necessary to produce a case of tuberculosis are a human being and the tubercle bacillus. Interest in tuberculosis should therefore transcend racial, cultural, and social barriers.

The changes in the tuberculosis picture, even when these are of the brightest, call for not an abandonment of our efforts but rather for the adjustment of them. Where the problem still looms large, the answer is obvious; there must be no relenting in the application of proved control methods. Where the problem has decreased in magnitude, efforts must be directed toward maintaining the status quo and towards "mopping up" in those age and social areas wherein the disease seems to have withdrawn itself. In some areas our efforts can be more selective without being any less intense. In such places too there must be a watch for the reintroduction of incidence from displaced persons, migrant per-

sons, and from the movement of those of different cultures from their environment into our own. The disrupting influences of military service, war and natural disaster call for additional alertness.

Because of the greater survival rate and the shortening period of treatment, rehabilitation of the individual back into society will be an increasing responsibility. Furthermore, the rehabilitation process will have to begin earlier.

Because of the effects of the antimicrobial drugs, fundamental research into the nature of the bacillus itself has become even more urgent. We actually know very little about the immune mechanisms associated with the process of tuberculous infection.

Appraisal of specific preventive measures must continue whether these measures be of vaccine nature or whether, as is currently being recommended, they be of drug character.

The strides in tuberculosis control so far effected have been due to the magnificent cooperation between professional and lay groups as exemplified by the various voluntary health organizations. The common denominator of this cooperation has been education. This education must continue at both professional and lay levels — lest we forget.

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MEETINGS

First International Medical Conference on Mental Retardation. The Eastland Hotel, Portland, Maine. July 27-31, 1959.

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42nd annual meeting of The American Dietetic Association, August 25 through 28, 1959, Los Angeles, California. Headquarters hotel — The Statler Hilton.

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FACTS AND FIGURES ABOUT MENTAL HEALTH

The greatest public health problem at the present time is mental illness. It fills more hospital beds than cancer, heart disease, and tuberculosis combined; and for every totally disabled inmate of a mental hospital at least two others are living in the outer world, not sick enough to be institutionalized, not well enough to live healthy, happy lives.

TOOL OF THE TRADE

R. MERRILL ALLING

Field Consultant, Montana Tuberculosis Association
555 Fuller Avenue, Helena, Montana

The tuberculin test has, in recent years, received much discussion as a case finding tool. Articles from many noted authors have appeared on the scene. Children vs. adults, prevention vs. case finding, school vs. community, and patch vs. Mantoux were questions of the day.

It was, in part, through these many debatable subjects and their sometimes lively discussions, that the tuberculin test, as a program, was brought to light in Montana. I would like to share with you Montana's experience in preliminary planning, organizational techniques, and the results we have found through the tuberculin test — a tool of our trade.

During 1955, the American School Health Association's Committee on tuberculosis appointed a Montana Sub-committee for the proposed School Certification Program. This group met with representatives of five official and voluntary health agencies in Montana, to work out final plans and procedures for the testing program. Two pilot programs were decided upon to evaluate the effectiveness of this tool.

The two programs met with such immediate success that the Tuberculosis Committee of the Montana Medical Association gave their official "green light" to go ahead with the ultimate goal of testing every student, teacher and adult personnel in all schools of Montana.

Although official sanction was given by the State Medical Association, the *first* step toward a successful program in Montana is approval by the local Medical Society involved. It has been the policy of the MTA to provide all necessary forms and materials, the required amounts of tuberculin, (for school testing and follow-up), platinum needles, syringes, alcohol lamps, and payment for x-ray films. Physicians volunteer their professional services to administer and read the tests. The County is to provide adequate facilities for nursing follow-up services.

Concerning remuneration for chest films, the Montana Tuberculosis Association, in accordance with resolutions passed by the Montana Medical Association, will pay $6.00 per chest film; $4.00 of which is paid directly to the person or agency taking the film,

and $2.00 for interpretations by a licensed radiologist. This latter amount is not paid to the individual radiologist, but is transferred to a special fund of the State Radiological Society for post-graduate medical education.

If the "go ahead" is given by the local medical society, the task of organizing a county advisory board can begin. Since in Montana, only four of the 56 counties have organized tuberculosis associations, the County Advisory Board will be a permanent structure to aid not only in the guidance of the School Certification Program, but other types of tuberculosis programs as well.

From the advisory board, a chairman for the School Certification Program is elected. The chairman appoints four sub-committees. These are: PUBLICITY AND PROMOTION; PHYSICIAN VOLUNTEER SERVICES; RECORDS AND MATERIALS; and the FOLLOW-UP COMMITTEE.

Permanent members to the publicity committee are the high school student body presidents. It has been our past experience to realize a low degree of participation among high school groups. However, since students have been included in the planning group, and they in turn promote an intensive educational campaign in the schools, the percent of participation has increased from an average 72% to an average 93%. An intensive publicity campaign is launched approximately three weeks before the actual testing is to start and continues throughout the program. All mass media news releases are given two prime objectives: (1) to have all or at least 95% of the parents sign and return the consent cards; and (2) have all positive reactors and their contacts consult their family physicians.

The school testing center should be a small, well ventilated room with two doors for separate entry and exit. After the test is administered, a leaflet explaining what was done, and what to expect as a result of the test, is sent home with the student.

Should the test be negative, a negative report form is sent home with the student. If the test is positive, one of two procedures or a combination of both can be followed: (1) the public health or school nurse personally visits the parents; or (2) a printed letter is mailed to the parents. The prime purpose of both methods is to inform the parents concerning the positive reaction; explain its significance; encourage a chest x-ray film of this child by the family physician; and show the necessity for all close contacts to see their physician for a tuberculin test.

Before each positive reactor is x-rayed, an authorization form in quadruplicate, is filled out and distributed by the follow-up committee chairman. The physician sends this form with the x-ray film to a licensed radiologist for reading.

In evaluating Montana School Certification findings, statistics have been grouped into three categories: *Indian, non-Indian rural,* and *non-Indian urban.*

Schools in five of Montana's seven *Indian reservations* were offered the program. Eighty-one percent of the 1,948 students and adult school personnel on these reservations were tested. Of these tested, 535 or 34%, were tuberculin positive. The initial test used was first-strength, followed by re-testing all negatives with second-strength interdermal PPD. Nineteen percent of the students in the *first grade* were positive to one of the two tests. A gradual increase was noted until grade five, where 35% were positive. The reaction rate remained fairly constant until the ninth grade, where 65% were positive reactors. Of all adults connected with the reservation school systems, 59% were positive reactors.

As previously stated, all *non-Indian* programs were grouped into rural and urban classifications. In the rural studies a total 4,262 individuals were tested. This amounts to 90% of the number possible. 1.6% of all students in the first grade were tuberculin positive. The peak of student infection was found in the sixth grade where 2.8% were positive reactors. Of all adults connected with the rural school systems, 15% were positive. The combined reaction rate of all rural schools, using intermediate strength Mantoux, was 2.98%.

The combined reaction rate for all non-Indian *urban* schools, using the same test, was 4.7%. The percent positive among *kindergarten* students in urban Montana was .47%. A gradual increase in the infection rate was noted till grade five. Here the rate of infection rose to 3.5% and increased at an accelerated rate to the grade eight, where 7.8% of the students were reactors. While 24% of all urban teachers reacted to the test, 44% of all *other adult personnel* in the schools were so infected. The percent tested in all urban schools was 97%.

Totaling both rural and urban non-Indian schools in Montana, we have found that 3.2% will be tuberculin positive. Of the students entering school at kindergarten age, .65% were infected with tuberculosis while 5.6% are so infected upon graduation. The

highest infection rate was noted in the eighth grade, where 6% were positive reactors.

Based on these limited data, Montana's experience seems to confirm the recognized national trend that urban populations have higher rates of infection than rural population. Montana's statistical findings indicate this is true among teachers and adults as well as among school children.

Still unanswered is the question of why we have found the highest rate of infection among eighth-grade students. The high school years, grades 9 through 12, all fall below the eighth-grade infection rates.

One condition that may have bearing on this eighth-grade peak followed by reduced high school rates, is the fact that most schools in Montana experience their highest rate of student "drop-out" between grades eight and nine. However, for this to be true, it would have to be assumed that the "drop-out" students have an exceptionally high rate of tuberculosis infection. As yet, we do not know this.

Although seven county-wide studies were used in tabulating reaction rates among non-Indian school populations, x-ray results in four counties were not uniform and were, therefore, discarded. Of the 623 chest x-ray films taken in three counties, 467 or 77% were negative; 58 or 10% were classified as probably inactive; 50 or 10% were read as "calcification" only; and 23 or 4% had "suspect" chest films.

X-ray films in these programs also revealed 64 non-tuberculous readings, which include cardio-vascular, neoplasm, fibrosis, carcinoma and so forth. From 623 chest films taken on positive students and their adult contacts, 33% had findings of clinical significance.

Ninety-five percent of all student positive reactors had chest x-ray film taken while 21% of these revealed findings of clinical significance.

There were a total 1,302 adults* concerned in the study. Of these, 90% were tuberculin tested while 30% were found to be positive. 97% of all adult reactors were x-rayed and 43% had findings of clinical significance.

Among the contacts, fathers comprised only 27% of the total group, yet they accounted for 43% of the positive reactions. Iikewise, mothers comprising only 28% of the total, accounted for

* Includes contacts and adult school employees.

35% of the total positive reactions. As you may imagine, the reverse was true among brothers and sisters of a positive reactor. They accounted for 35% of the group, but only 14% of the number positive.

The total cost to the Montana Tuberculosis Association, for these programs was $6,203.74. This included forms, materials, professional salaries, travel, organization and payment of x-rays.

A total of 9,206 tests were given[1], for a cost of $.27 per test given. The cost per positive reaction, was $3.94. The cost per x-ray film finding was $8.46. The cost per x-ray finding classified as tuberculosis was $44.31, while the cost to find one suspect case of tuberculosis was $258.49.

These costs are based on first year programs and are expected to drop appreciably as they are continued. This cost reduction will be a direct result of action by county advisory boards, who will handle the continuing programs without extensive professional assistance from the MTA.

In the two years Montana has actively sponsored the School Certification Program, a total 15,078 students, teachers and other adult school personnel have been tested. This amounts to 11% of our total school population. Of the 183 schools tested, 136 have received American School Health Association certificates. These were, 106 class "A" and 30 class "B" certificates. As of this writing, an additional 71 schools are presently undergoing this program.

The School Certification Program has enjoyed tremendous success and acceptance among Montana's educators, physicians, newsmen and lay citizens. As a direct result of this program, Montana has realized many benefits. In conclusion, I would like to state what we feel the 10 principal accomplishments are:

1. Medical consultation is now sought by many patients who were seldom seen by their private physician.
2. Families who had no physician now have chosen one for continuing care and consultation.
3. The program has made it possible for the family physician to exclude or include tuberculosis as a possibility in patient diagnosis at the time of testing and later in life.
4. On a mass basis, all non-reactors can be excluded in the search for tuberculosis.
5. Positive reactors, aware of their infection, are now on the alert for possible breakdown or tuberculosis reinfection.
6. Positive reactions to the tuberculin test include non-pulmonary tuberculosis.

1. Included contacts tested and x-rayed.

7. All individuals in the county or community are stimulated to a higher degree of health consciousness.
8. A *continuing* program will determine how effective existing methods of case finding have been.
9. A *continuing* program can readily find the source cases of tuberculosis.
10. A *continuing* program detects the active disease early, when treatment is most effective and recovery probabilities highly improved.

* * * * *

NEWS AND NOTES

World Health Day, April 7, 1959, marks the eleventh anniversary of the World Health Organization. It is observed as many old and new health problems trouble the world, none perhaps more alarming than the increase in mental illness. Mental disorder has become one of the major problems of our time. Though generally more acute in countries of high economic development, mental illness is an international problem, one that no single nation escapes. And it can become greater as the world level of industrialization and technology rises . . . unless we do something about it.

All of us have a "breaking point," and the increasing tensions, both internal and external, to which we are subjected can seriously affect our mental well-being.

* * * * *

MEETINGS

ALEXANDER GRAHAM BELL ASSOCIATION FOR THE DEAF HOLDS REGIONAL MEETING

Dr. S. Richard Silverman, president of the Alexander Graham Bell Association for the Deaf, will address the Regional Meeting of the Association to be held in Houston, Texas, April 17 and 18. He will speak on "The Teacher's Job" at the Friday afternoon session.

Another feature of the Houston meeting is a panel discussion of the topic, "The Specialists Join Forces," with parents of deaf children sitting on the panel with specialists.

"OUR 28 YEARS WITH THE MANTOUX TEST" KENT COUNTY TUBERCULOSIS SOCIETY GRAND RAPIDS, MICHIGAN

BLANCHE H. DEKONING, R.N.
Executive Secretary, 1923 to 1958

Kent County, Michigan, has a population of about 330,000, half of them living in Grand Rapids, the other half in thickly settled suburbs, 10 small towns and on farms. The suburbs and towns are almost as industrialized as is Grand Rapids, so we may say that our society works in a preponderantly industrialized area.

Frequently we have been told that our tuberculosis problem was never as deep as that of other cities of comparable size because of our rather stable Holland Dutch settlers and no slums. To that we must reply that those clean Hollanders were riddled with tuberculous when they came to our shores and were our greatest problem when our society was organized in 1905.

We do not have closely crowded slums as you will find in the larger cities but we have what our Chamber of Commerce prefers to call "blighted areas," where overcrowding, poor sanitation and everything included in bad housing and poverty takes its toll. We find such spots in certain suburbs and even in the rural areas.

Just before our society was organized in 1905 the tuberculosis death rate was 176 per 100,000 population. It dropped to 64 in 1925 after our sanatorium had operated for two years; went down to 16 in 1944, after 15 years of tuberculin testing and was only 1.5 in 1957, with only 5 deaths. We should not be talking about death rates now, but we started our analyses when death rates were our only measuring stick. We must also remember that tuberculosis must be found before it can be treated and that intensive casefinding prevents deaths.

In 1927 and 1928 we heard a lot about people in the 'teens and twenties having tuberculosis, which was then called "The Foe of Youth, Especially Among Young Women." We decided to see how deaths ranged in our county. All the deaths by age and sex, covering a period of 45 months were put on a graph. They showed a high peak of deaths among women at 29 and another among men at 39. Housewives topped the list, with industrial workers second and students third. There were also 8 deaths among teachers. Our directors were much impressed with this study as they realized

that each death had infected nine people, mostly children, and that this group of people in the parenthood ages were causing a vicious circle of infection.

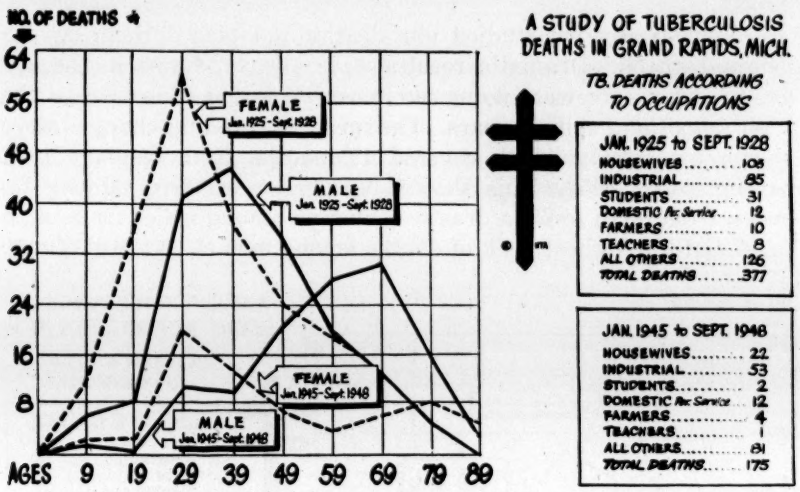

CHART I

In 1930 we embarked on what we called "A Ten Year Plan for Youth," which included the Von Pirquet Test for high school students, given by pediatricians in our city, and chest x-ray films for all reactors. All 14x17 films were made by private radiologists and all of them read twice, first by the local doctor and then sent to Dr. Henry Chadwick and several others for consultation service. Our roentgenologists welcomed this to help them improve their knowledge about chests. We continued this dual reading about 10 years. During the years which followed we changed to the Mantoux Test and at first gave three tests. We also tried the Patch Test but quickly discarded it as being unreliable. When PPD was introduced we tried it on several thousand students but discontinued it because we found less than 1% difference. In the meantime our Michigan State Health Department developed Old Tuberculin of high standard and we have been using that in medium strength, one dose, the past 15 years.

In 1937 we studied our results after seven years of work and found that out of only 18,693 high school students tested, 3,788 or 20% had positive reactions. Active tuberculosis was found in 31 young students and 22 cases among parents, grandparents and one teacher. This was 1 case in 353 tested and 1 case in 71 x-rayed

among a young low incidence group. Diligent follow-up work was done in all families of the positive reactors by our own specially trained and deeply interested nurses. THIS IS VERY IMPORTANT!

Periodically we studied our deaths and placed them on our original graph. Dramatic results were always shown in the age groups where we were doing our most work and education — the high school and college years. The most outstanding changes were shown in a study which covered 45 months from January 1951 to September 1954. This showed no deaths whatever among females from birth to 29, a drastic reduction among males from birth to 49 and the highest peak of deaths among men at 69 years of age.

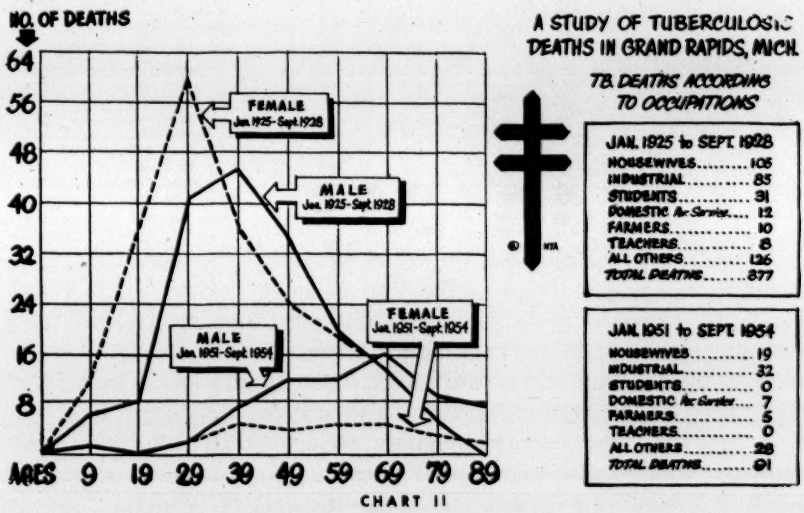

CHART II

Deaths among industrial men took the lead with housewives second and personal service workers third. There were none among students or teachers.

As a result of these studies, in 1937 we started the same kind of program in industries — using the Mantoux test and having 14x17 chest x-ray films made by private radiologists and our hospitals. We believe this was the first program of its kind in this country and possibly in the world. It proved to be so productive our directors decided to buy a Mobile X-ray Unit and this was delivered in 1946.

After delivery of this equipment in which we use 4x5 films, our Policy Committee, consisting of our medical board members,

local radiologists and other leaders decided to push our program in industries and communities and give a tuberculin test to everybody who comes to the bus.

In industries these tests are read in 48 hours by our nurses, who go directly to the people at their machines and desks. In communities a diagrammed government postcard is given to each person tested to be returned to us at the end of 48 hours. About 95% of these are returned to us but you may question their accuracy. That never worries us too much because we have their pictures in our camera just the same as you have in a program of x-ray films only.

Suspicious cases of tuberculosis are cleared through the Out-Patient Clinic of our sanatorium, some of them through their private physicians. Patients with other abnormalities are referred directly to their own doctors. Every person x-rayed receives a personal report and all positive reactors either have a personal call or we send them the National Tuberculosis Association pamphlet "How Your Body Fights TB." All of this has been worked out through the Tuberculosis Committee of our Kent County Medical Society and that organization is proud of the results.

Our nurses do the follow-up only until the patient has gone to the Sanatorium Clinic. From there on all orders by the clinic doctors are referred to the Bureau of Public Health of our Health Department.

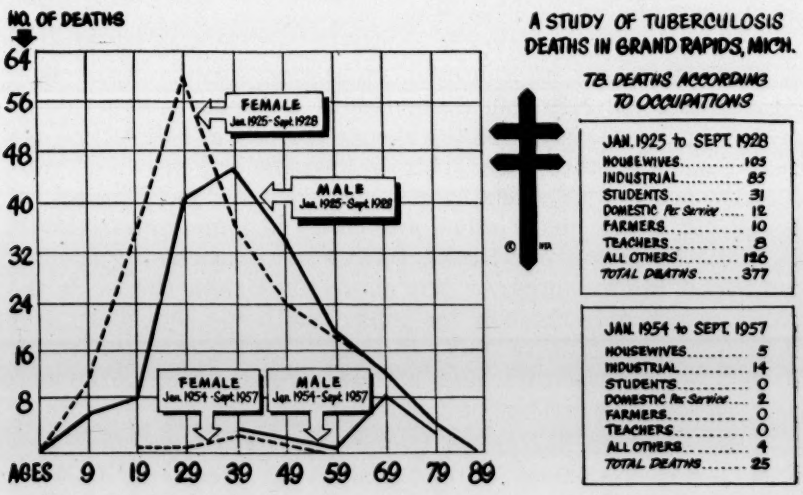

CHART III

In September 1957 we completed another study of deaths in our county by sex and age and found that they have been decreased so dramatically that only a graph on mats or slides can tell the story. Again, please remember that cases must be found before they can be treated and so we must still watch our deaths.

Since 1937 when we made our first review of our testing program we were convinced that the tuberculin test, properly done, with follow-up work carried out by trained and interested personnel, should be the keystone in our battlements against our hidden, tricky foe because:

1. It provides a mass educational medium when preparing a school group or industry for a testing program.

2. A positive reaction startles the reactor, his family and friends and makes them eager to know the truth about tuberculosis. It provides the finest kind of opportunity for giving facts where they are most needed — right in the homes where we have found infection. These people are most anxious to know about the trickiness of this disease so they may through proper living, avoid a breakdown.

3. A testing program should be planned with suitable people available to do prolonged and intensive follow-up. This is especially important for elementary grades and younger children where the carrier can usually be found among close relatives, a baby sitter, etc. A local tuberculosis society can do a great deal in this part of a testing program.

In our county the work is so closely knit between the Medical Society, all boards of education, industries, Health Department, Sanatorium, the Michigan State Health Department and our society that it is difficult for the average person to note where one begins and the other ends. This is desirable and provides continuity by people with special interest. It prevents tuberculosis from being lost among many other less costly and non-communicable diseases. Of course our Health Officer is responsible by law for the overall control program but above the Health Officer is the public, which pays the bills for public health and should see to it that "TB is not brushed under the rug." Saying that the Health Department is responsible does not always guarantee that an adequate control program will be done.

This program has grown steadily from 829 high school students tested in 1929 to 52,910 tested in our fiscal year 1956-57. The latter included people in every age group from the cradle to

the grave. When people ask how much does it cost to find an active case we cannot follow their thinking. Why should we wait for active cases when we preach "Tuberculosis is Preventable?" So it is! Why wait for cavities to spray their venomous bacilli on children, relatives and friends? If we mean what we say when we want the public to buy our Christmas Seals, let us put into action that slogan — "Tuberculosis is Preventable."

What about costs? Experience has taught us that a positive tuberculin reaction shows the first or primary stage of tuberculosis, most of which cannot be found by x-ray alone. In 1957 we found 9,825 such cases or potential cases, spent $23,000.00 on case finding at a cost of $2.34 per case. In addition, what about the inactive and suspicious cases which have been found, educated and should be followed — or the cancer, heart and other abnormalities discovered and placed under treatment? Let us be honest and look at the whole result.

We have long felt that our program needs a boost at this point. We started testing several years before the American School Health Association began its program of certification and, because our response was averaging about 80% in the schools, we became too satisfied. Our reactors in high schools have dropped from 25% in large city high schools to 2 or 3%, and one floor of one sanatorium is being used for chronic welfare cases. Now we are not only campaigning against tuberculosis, but against apathy and a false sense of security. We need the Certification Plan of your organization very badly now and are considering its inception. If any of you are just starting your testing program be sure to take advantage of the stimulation of this plan.

In conclusion, let us rally around the battle cry — TB can be prevented! Shout it so loudly and persistently that soon the people in your community will realize you are really working toward this goal.

* * * * *

NOTICE—REQUEST FOR NOMINATIONS

The Nominating Committee invites any member of the American School Health Association to suggest the names of persons to be nominated for Vice President in Charge of Programs, Vice President in Charge of Membership, and five members of the Governing Council to replace retiring members.

—R. H. WEAVER, M.D.

KNOWLEDGE ABOUT TUBERCULOSIS HELD BY HIGH SCHOOL AND COLLEGE STUDENTS

H. FREDERICK KILANDER, Ph.D.

Professor of Education, New York University

This report on students' knowledge about certain facts related to tuberculosis is part of a larger continuous study that was started in 1935 and first reported in 1936[1] and later in 1943[2] and 1954[3]. By means of objective tests, studies have been made to determine the extent of information and misinformation of various groups. This article deals with the information of high school and college students.

The tests given these students are the *Kilander Tuberculosis Information Test,*[4] the *Kilander Health Knowledge Test for College Students,*[5] and the *Kilander Health Knowledge Test for High School Students.*[6] The first test consists of 20 multiple questions related to Tuberculosis. The college test consists of 100 questions covering the broad areas of health of which four are specifically related to TB. In each of the two forms of the high school test, there are five questions on TB. Certain of the questions in the TB test are included in the other two tests.

A comparison is made in Table I between the replies obtained in 1936 - 37 with those of 1957 - 58. The latter figures are for over 3,000 college freshmen from New York University, Rutgers University, Penn State University and other institutions, and students from 25 high schools most of which are located in the east.

TABLE 1—TUBERCULOSIS INFORMATION

A comparison of percentage of high school seniors and college freshmen having correct answers in 1937 and 1958

	High School Seniors		College Freshmen	
	1937	1958	1937	1958
1. In attempting to eradicate TB, this disease should be considered primarily:				
1. An hereditary disease	20	14	14	6
2. An infection	41*	45*	43*	63*
3. An emotional ailment	2	4	2	2
4. As caused by faulty nutrition	35	32	40	29
Unanswered	2	5	1	
2. In order to recover from tuberculosis, which one of these procedures is most important?				
1. Rest	44*	72*	43*	73*
2. To move to a dry climate	48	14	50	19
3. Exercise such as long walks	3	6	4	2
4. Injections of tuberculin	3	6	2	6
Unanswered	2	2	1	

3. Can communicable diseases be inherited (consider only biological inheritance)?				
1. Many but not all communicable diseases can be inherited	14	14	12	18
2. It is only occasionally that such diseases are inherited	16	27	13	13
3. Tuberculosis is a communicable disease which may be inherited	16	13	15	26
4. Communicable diseases cannot be inherited	50*	41*	58*	42*
Unanswered		5		1
4. Tuberculosis in childhood is acquired today in the United States most frequently by getting the germs:				
1. Through inheritance	14	15	12	8
2. From street dust	9	16	8	13
3. From contact with grown-ups who have the disease	27*	41*	28*	57*
4. By drinking milk from infected cows	48	25	50	20
Unanswered	2	3	2	2

* Preferred Answer

There has been definite improvement in the level of information held by high school and college students for three of the questions for which comparable data are available. For one question there seems to be even less correct information today than in the thirties.

How TB Is Acquired: There was considerable improvement between 1937 and 1958 on students' knowledge about how *tuberculosis in childhood is acquired today.* Of the college freshmen, 57 percent in 1958 indicated correctly that it was *from contact with grown-ups who have the disease* as compared with only 28 percent in 1937. Correspondingly figures for high school students are 41 percent (1958) and 27 percent (1937). That it is acquired most frequently *by drinking milk from infected cows* was checked by 50 percent of college freshmen in 1937 as compared to only 20 percent in 1958. High school students holding this same view were 48 percent (1937) and 25 percent (1958).

Eradicating TB: *That this disease should be considered primarily "an infection" in attempting to eradicate TB* was correctly checked by 63 percent of the college freshmen in 1958 as compared to 43 percent in 1937; corresponding figures for high school seniors are 45 percent (1958) and 41 percent (1937). That it should be considered primarily *an hereditary disease* were incorrectly checked in 1958 by 6 percent of college freshmen and 14 percent of high school seniors. That it is *caused by faulty nutrition* was indicated by 29 percent of college freshmen and 32 percent of high school seniors.

Recovery From TB: That *rest* is the most important procedure (of the four listed) in *the recovery from TB* was indicated correctly by 73 percent of college freshmen in 1958 as compared with only 43 percent in 1937. The corresponding figures for high school seniors were about the same—72 percent for 1958 and 44 percent for 1937. In 1937, 50 percent of the college freshmen thought a *dry climate* was more important than rest, whereas in 1958 only 19 percent held this erroneous idea. Corresponding figures for high school seniors are 142 percent in 1958 as compared to 48 percent in 1937. A small number answered incorrectly *exercise* or *injections of tuberculin* instead of *rest* or *dry climate*.

Is TB Inherited? It is only on the question of *communicable disease being inherited* that an improvement is *not evident*. In 1937, 58 percent of college freshmen replied correctly that *communicable diseases cannot be inherited* as compared with only 42 percent in 1958. High school seniors had also dropped from 50 percent in 1937 to 41 percent in 1958. The others checked one of the other three choices all of which indicate a belief in the ability to inherit a communicable disease. One of these choices—*TB is a communicable disease which may be inherited*—was incorrectly checked by 15 percent (1937) and 26 percent (1958) of the college freshmen and by 16 percent (1937) and 13 percent (1958) of the high school seniors.

Findings related to other topics about TB, as obtained from the Tuberculosis Information Test, are as follows:

1. There has been a marked improvement in the knowledge of students about the tuberculin test. This is probably due to the fact that this test is being given or discussed, more widely in the schools today. Parents and other adults are not equally informed.
2. Most, but not all, students know that *a baby cannot be born with TB.*
3. A majority of students know that *tuberculosis is preventable.*
4. Most, but not all, students know that *most persons who have TB can get well if given proper treatment and care early.*
5. Most students know that *a chest X-ray in relation to TB is of great value in detecting TB in the lungs,* but many others believe that it *is the final proof of the presence or absence of TB of the lungs.*

SUMMARY

1. There has been a slow but steady increase over the past 20 years in the level of correct information held by high school students for most of the TB topics tested.
2. The Public, however, continues to be confused and misinformed about the possibility of inheriting TB and other communicable diseases. More people seem to be misinformed on this topic today than 20 years ago.
3. Many high school and college classes scored very *high* on these TB questions whereas other classes scored very *low* — no doubt reflecting the effect of the presence or absence in the schools and colleges of TB control programs, as well as health instruction on the subject.

4. Parents and adult groups other than professional people do not ordinarily score as well on TB questions as compared to high school students, although they tend to score better than students in some other health areas such as nutrition. The poorer showing on TB questions may reflect the greater extent of TB programs in school today as compared with the years when the adults may have been in high school.

5. There is still considerable need for education on the subject of TB for high school and college students and for adults. The schools and colleges, TB associations, and health departments continue to have a joint responsibility for this education.

REFERENCES

1. Kilander, H. F. "Health Knowledge of High School and College Students." *The Research Quarterly*, American Association for Health, Physical Education and Recreation. pp. 3-32, October 1937.

2. ———"What the Public Knows About TB." *Bulletin*, National Tuberculosis Association. October 1942.

3. ————"Testing Health Information of Students and Adults." *The Journal of School Health*. pp. 28-34. January 1954.

4. ———— *Tuberculosis Information Test.* The Author: 33 Colonial Terrace, East Orange, New Jersey. 1947, Second Edition, 1951.

5. ———— *Kilander Health Knowledge Test For College Students.* The Author: 33 Colonial Terrace, East Orange, New Jersey. 1936, Fourth edition, 1958.

6. ————*Kilander Health Knowledge Test For High School Students.* Forms A and B, 1952. Yonkers-on-Hudson, New York: World Book Company.

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THE TULARE COUNTY SCHOOL HEALTH ADVISORY BOARD STORY

BURT M. KEBRIC, Ed.D.,

Secretary-Coordinator

Room 202 Courthouse, Visalia, California

THE TULARE COUNTY SCHOOL HEALTH ADVISORY BOARD is a unique, voluntary organization established to more closely coordinate efforts toward improving the health of children and youth in Tulare County, California.

Its specific functions are to assist school districts with the solution of their health problems and to arrange for the Annual Tulare County Conference of Physicians, Dentists, Optometrists, and Schools.

Membership: The Advisory Board is made up of one representative from the following county organizations: Coordinating Council of Health and Social Agencies, Dental Society, Elementary School Administrators Association, Health Department, Medical Society, Office of County Superintendent of Schools, Optometric Society, Parent-Teachers Association, School Boards Association, Secondary School Administrators Association, School Nurses Association and Teachers Association.

Accomplishments: Some of its major accomplishments in helping schools to solve health problems are:

1. Service as a county school health resource agency.
2. Improved coordination of county organizations participating in the school health program.
3. Publication and distribution of the booklet, "PROGRAM FOR IMPROVING SCHOOL HEALTH COORDINATION IN TULARE COUNTY."
4. Formulation of county school health policies and procedures for vision screening, hearing testing, immunization and medical examinations.
5. SPONSORED SECOND COUNTY CONFERENCE OF PHYSICIANS, DENTISTS, AND SCHOOLS, "What Is an Adequate Health Program For Schools In Tulare County? How Can We Improve Our School Health Program?". 1957.
6. Preparation, publication and distribution of booklet, "School Health Program Essentials. Administrators Check-List."
7. Survey of "Successful School Health Projects in Tulare County."
8. Preparing for THIRD COUNTY CONFERENCE OF PHYSICIANS, DENTISTS, OPTOMETRISTS AND SCHOOLS, "SUCCESSFUL SCHOOL HEALTH PROJECTS IN TULARE COUNTY."

Operation: Officers of the Advisory Board are a chairman and a secretary-coordinator.

Committees are appointed for specific purposes and disbanded when work is completed.

Two meetings are held annually and others are called when the need arises.

School health problems are presented in writing to the Secretary Coordinator. He presents them to the ADVISORY BOARD or to the member organization concerned depending upon the nature of the problem. The Secretary then returns the reply to the person who presented the problem.

Budget: Finances for the operation *of the Advisory Board* are provided equally by the County Medical, Dental, and Optometric Societies.

The County Superintendent of Schools provides the Secretary-Coordinator (Associate County Superintendent in Charge of School Health) and the keynote speaker for the Annual Conference.

History: The Advisory Board was established May 14, 1957, upon the recommendation of the First Tulare County Conference of Physicians, Dentists, Optometrists, and Schools, November, 1957.

The plan for this conference was first discussed by John Castiglione, M.D., Chairman, School Health Committee, Tulare County Medical Society; J. Post Williams, County Superintendent of Schools, and Burt M. Kebric, Ed.D., Associate County Superintendent of Schools, following their attendance at the 1955 Conference of Physicians and Schools in Fresno sponsored by the California Medical Association.

Representatives of the 13 county organizations interested in school health were invited to discuss the need for a county school health conference. This group became the planning committee for the First Tulare County Conference of Physicians, Dentists, Optometrists, and Schools which later became the Advisory Board.

FIRST COUNTY CONFERENCE

Conference Information: The first Tulare County Conference of Physicians, Dentists, and Schools was held at the Sierra Vista School, Visalia, California, November 30, 1956.

This Conference was an outgrowth of the State and Regional Conferences of Physicians and Schools sponsored by the California Medical Association in 1954 and 1956.

Invitations to the Conference were extended to 425 persons representing 22 county organizations. A total of 317 persons participated.

Each participant was asked to list on a return post card a major health problem in his community. These were compiled and adopted for discussion by each of the nine sections.

Two sessions were held by each group. An attempt was made to have equal representation of all agencies represented in each of the nine sections.

The discussion topics were:

Areas of Responsibility of the Agencies Participating in the School Health Program
Communication Between Health Agencies and Schools
A recommended School Health Program for Tulare County

O. E. Byrd, M.D., Ed.D., Chairman, Health Education Department, Stanford University, discussed "What Is a Good School Health Program for Tulare County?" and "Teamwork for Better School Health" at the General Session.

John B. Castiglione, M.D., Chairman, Committee on School Heatlh, Tulare County Medical Society, served as the Conference Chairman.

* * * * *

REVIEW

Health Education in the Elementary School, by Carl B. Willgoose, Ed.D., Professor of Health and Physical Education, State University of New York, Oswego, New York. Publ. W. B. Saunders Company, 1959, Price $5.25, 450 pages 5½" x 8½".

This is a very valuable and useful book for everyone working with children at the grade school level. A complete coverage in one volume of elementary education is found under the following chapter headings: "The Nature and Scope of Health Education; The Elementary School Health Program; Functions and Scope of School Health Services; Aspects of Healthful School Environment; Health Instruction Program; Normal Growth and Deviations from Normal; Planning the Health Curriculum; Methods in Health Instructon; Material Aids in Health Teaching; Sources of Free and Inexpensive Teaching Aids; and Evaluation in Health Education."

The unique thing about this book is that each chapter is filled with practical and usable information and procedures. It is also well illustrated.—A. O . D.

* * * * *

Available, *Pamphlets, How to Write and Print Them*—A new 32 page publication of the National Publicity Council for Health and Welfare Services, Inc., 257 Fourth Avenue, New York, New York. Price, $1.25.

THE TUBERCULOSIS STORY — 1958

. . . over 8,000,000 lives saved since 1907
. . . 250,000 Americans with active TB
. . . 1,750,000 Americans with inactive TB
. . . one new case every six minutes
. . . a TB death every forty minutes
. . . 55,000,000 Americans infected with TB germs
. . . $725,000,000 price tag

This, in brief, is the story of TB, the Number One infectious killer in the U.S.A. today.

Great strides have been made toward the conquest of TB. Since the first Christmas Seal was sold, an estimated 8,000,000 people have lived who would have died had the TB death rate remained at its 1907 level. But . . .

Latest estimates indicate that *250,000 Americans have active TB,* 100,000 of them unknown to health authorities. Many of these people may not be receiving any kind of treatment, may not even know they are ill, and may be spreading the disease to others.

An estimated *1,750,000 former TB patients with inactive disease* risk relapse unless their health is maintained at a high level. About 550,000 of them require medical supervision.

Approximately *90,000 new cases* of TB are reported annually —one every six minutes.

TB takes about *14,000 lives* a year — one every 40 minutes.

Some *55,000,000 Americans are infected* with germs that may cause TB unless their resistance is maintained. Experts say that 2,700,000 of these will develop TB during their lives, if the present rate of development of disease from infection continues.

The annual cost of TB is estimated at $725,000,000, mostly in tax money. This figure includes money spent for prevention, detection, treatment and compensation. It does not include lost earnings. Since 1952, the cost of TB has increased more than $100,000,000.

* * * * *

REVIEW

Promising Practices in Nutrition Education in the Elementary School — Jacobsen, Boyd, and Hill, Publ. Bureau of Publi cations, Teachers College, Columbia University, New York City. Price $1.00. 46 page monograph. A study of promising practices observed in nutrition education in elementary schools and full of very practical and helpful suggestions.—A. O. D.

FITNESS

Stressing the pertinence of fitness to national defense in the space age, Korean War hero and Congressional Medal of Honor winner Major General William F. Dean (Ret.) was scheduled as the opening day general session speaker for the 26th Annual State Conference of the California Association for Health, Physical Education, and Recreation (CAHPER) March 21-24 at the Los Angeles Statler Hilton Hotel.

The conclave was called to consider atomic era health, physical education, and recreation requirements for the well-being of America's youth through the conference theme "Ideas + Action = Results."

Over 125 different sessions were scheduled for the convention, including lectures, panels, symposiums, demonstrations, student sessions, luncheons, and dinners. Special events included an elementary school physical education workshop, education and commercial exhibits, and a Sportsorama.

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